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## THE SOUTHERN LONG-LEAF PINE BELT

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A generation ago the geographic student read that, for the most part, the Southern yellow pine belt was a dense forest with a relatively small lumber production. The student of today learns that this belt is the main lumber-producing region east of the Rocky Mountains. Twenty years hence, when most of the timber shall have been cut, what will the future student read? This is a geographic question, for geography is concerned with the relations between man on the one hand and soils, climate, and other earth factors on the other; an economic question, for here will be an area greater than that of Texas which must somehow find its place in our economic development; a social question, for its solution will determine whether man in this belt shall live well or poorly, on large plantations or small farms, in towns or in the country. Furthermore, it is quite possible that the future population of the cut-over pine lands will be a more or less distinct political unit, for politics is often markedly affected by earth factors.

A consideration of the problem falls into two main divisions: one concerned with the soils and climate which condition the belt, and the other with the two economic-geographic results, namely (1) the present lumber industry and (2) the future development of the cut-over pine lands.

This belt is often called the yellow pine belt, since most of the Southern pines are comprised in this lumberman's trade term. The long-leaf pine belt, however, as shown on the map (Fig. 1), is remarkably distinct, its margins where it shades off into the short-leaf pine and other trees often being less than a mile in width. The long-leaf pine is so called from its clusters of long needle-like leaves in contrast to the short-leaf pine, which has short needles. A drive through the virgin long-leaf pine forest will long be remembered. The stately trunks rise forty to sixty feet and then spread out their dense foliage, which joins above like the arches of a cathedral. There is little or no undergrowth, and the view fades into a maze of the column-like tree trunks. This variety of pine is a native of the South, with its warm, moist climate. It grows on sandy soils which are relatively infertile, a characteristic shown by the term "pine barrens," which is often applied to these lands. The long-leaf pine belt stretches from southeastern Virginia in a long sweep to Texas and includes an estimated area of 250,000,000 acres, an area considerably greater than that of Texas and nearly five times as large as that of New York. At present from 5,000,000 to 10,000,000 acres are being cut over each year, an area about the size of Massachusetts.

## THE LUMBERING INDUSTRY

There has been for many decades a considerable lumbering industry in this belt along railroads and rivers, and the timber is pretty well stripped back from the main lines of transportation. Formerly the mills were small, and cutting was limited to distances which could be covered by ox-team and mule-team transportation. Back of these cuttings was an almost unbroken pine forest. Twenty to thirty years ago, when the Northern forests

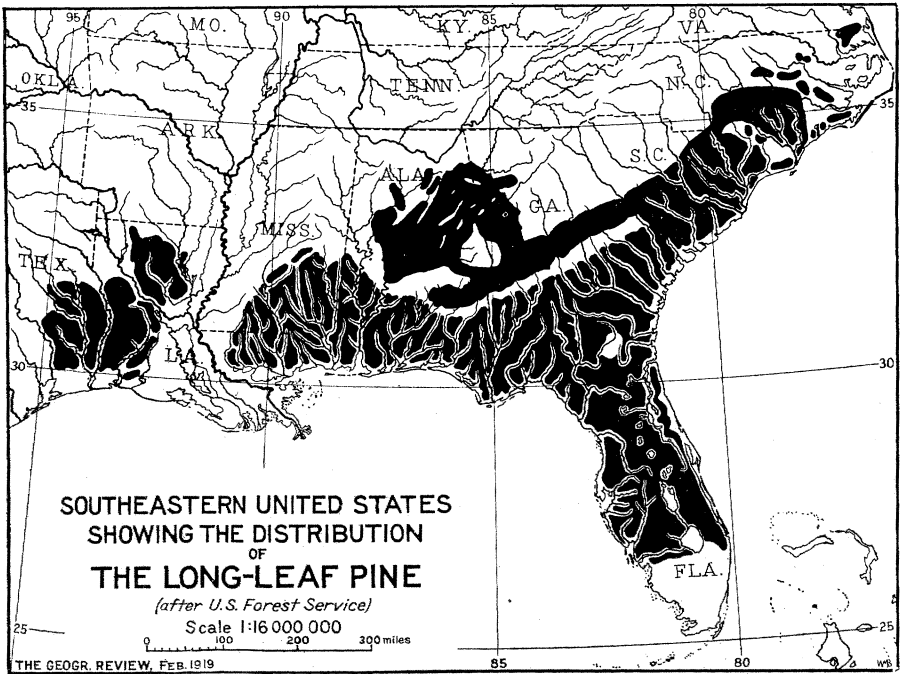


FIG. 1.—Map of the southeastern United States showing the distribution of the long-leaf pine. Scale 1:16,000,000. (Based on the "Atlas of North American Forests," Part I: Pines, Pl. 35, U. S. Forest Service, Washington, D. C., 1913.)

were approaching exhaustion, professional lumbermen bought these virgin pine forests at nominal prices. We have seen that the transportation problem of getting the logs to mills and then getting the lumber to market had limited local development, for local companies possessed small capital. To locate large mills on a railroad and then haul the logs ten or fifteen miles or more required well-built tram roads, which are expensive. The large-scale exploitation of the pine timber, therefore, passed to companies possessed of ample capital, and the lumbering industry in this belt, like so many other industries, is largely in the hands of capitalists and strong companies, many holdings including tens of thousands of acres. Fortunately the level and rolling surface offers few obstacles, and thousands of miles of well-built railroads now traverse these forests. Most of these railroads are of standard gage. After the timber has been cut, the owners

are reluctant to abandon the expensive railroads and so maintain some train service, with the hope that the country will develop and make the roads profitable or that some trunk line will buy them as feeders. Many of the abandoned tram roads are now used as public highways, and they will be an important factor in the development of cut-over lands.

A large lumber mill is interesting. After the logs reach the tram road, they are loaded by cranes and carried to a pond, from which they are drawn to the saw. The logs, large and small, are placed and handled by ingenious machinery, and but a few minutes are needed to transform the largest log into lumber. It is indeed fortunate that, when the urgent call for wooden ships came in the war emergency, these well-equipped mills with abundant timber were ready and not far from the Gulf shipyards. While lumber is the principal product, it must not be forgotten that millions of dollars' worth of pitch is gathered from these trees for some years before they are cut. At most mills the slabs and sawdust are carried to a pile which burns night and day—a most regrettable waste. Yet a beginning has been made in utilizing both the slabs and the sawdust for charcoal, alcohol, and paper.



FIG. 2—Long-leaf pines cupped for gathering pitch.

Lumbering in this belt employs about a quarter of a million men, and nearly a million people are dependent on the industry. The lumber towns are, as a rule, up to date, with electric lights, city water, often gas, and sometimes paved streets. The schools are always good. These towns are necessarily more or less temporary, yet the modern method of extending tram roads for considerable distances insures the town's existence for ten to twenty years until the timber of the tributary territory is cut. They are far from resembling the "shack" towns which grow up around small mills. These mill towns are serving and will serve as nuclei for the rural population which occupies the cut-over lands as the timber is removed.

#### THE CUT-OVER LANDS

The common practice is to remove not only the timber but also the smaller

trees which can be used for poles and paper pulp, for, while the expensive tram road is in operation, it is to the lumberman's advantage to get out all the timber he can, even if the profit on some of it is low. Almost invariably forest fires sweep through the timber wreckage of cut-over lands, and much of the cut-over country is dismal indeed. The pine almost everywhere implies relatively infertile sandy soils—relatively, let it be said, for some sandy soils have been made very productive. While the pioneer on the Western prairies could at once break his sod and raise wheat and corn, while the farmer in arid regions quickly gets a crop from his irrigated soil, and the farmer in drained wet lands is usually fairly sure of his first crop,



FIG. 3—Clearing the cut-over lands of brush. (Photo by W. E. Tharp.)

the farmer on cut-over lands must first build up his soil, which is usually deficient in nitrogen and humus and often phosphorus. These large areas of cut-over lands are thrown onto the market faster than they can be absorbed. The states are vitally interested, for, with the cutting of the timber, land values slump and taxes are decreased; it is therefore very important for the state that these lands be put to use. The railroads are apprehensive that freight traffic will all but disappear when the lumber is gone; the owners are obviously interested in disposing of these lands; the nation is interested in them as a possible substitute for the public lands of the West. The question of utilizing the cut-over pine lands is one of the most important faced by the South today. The three most feasible projects of utilization are reforestation, agriculture, and live-stock raising.

#### REFORESTATION

It is estimated that not far from twenty per cent of the cut-over pine lands should not be cultivated until our population density reaches that

of western Europe, and perhaps not then. Some lands are so hilly that active erosion sets in when they are cleared. Other lands are flat, so that drainage is necessary, an expense which the land values will not justify for many years. Still other areas have deep sandy soils of such low natural productivity that most of plant foods must be furnished them. With the present rate of absorption large areas will remain untilled for one, two, or more generations, and in that time reforestation would be profitable. In this connection, two questions must be considered: Is reforestation possible? and Is it commercially feasible? For many years lumbermen have believed that reforestation on a commercial scale is not possible because the usual second growth is not pine saplings, as one might expect it to be, but "scrub oak," a name which fails to indicate the average poor opinion of this shrub which refuses to grow into a tree, which has a trunk so crooked as to be useless even for fence posts, but which quickly occupies the soil in dense thickets. The Hardtner family of Urania, La., who are extensive lumbermen, have proved the possibility of natural reforestation and have made that town classic in forestry. Through their experiments we now know positively that the long-leaf pine seedlings have two enemies, both of which can be abated. Running fires will kill the young seedlings, and these fires are almost annual occurrences during the dry spells. Again, the razor-back hog, which roams far and wide, is very fond of long-leaf pine seedlings and roots, and he will root up an almost incredibly large area in getting his day's food. It has been shown that, by keeping down fires and fencing out the hogs, a pine forest can soon be started and that after a few years' growth it will withstand both hogs and ordinary fires.

The average lumberman, however, is after his "clean-up" and, like the rest of us, is not much interested in a crop that will not mature for twenty years or more, so that reforestation will probably be carried on mainly by well-organized corporations which have an eye to future dividends. As an instance of this, the Great Southern Lumber Company of Bogalusa, La., is operating pulp mills to utilize the smaller logs. Within twenty years their present stand of virgin timber will have been cut, and they are starting reforestation with a view of providing timber against that time.

#### AGRICULTURE

Conditioning factors of agriculture are soil, climate, transportation, and markets—the latter two factors being fairly favorable to the cut-over pine lands. The soils are not productive, else the westward-moving emigrants would not for the most part have passed around this belt. They yield somewhat scant crops of cotton, corn, and wheat unless they are quickened with commercial fertilizers. But, as if nature wished to compensate for a shortage of nitrogen and humus, these soils produce heavy growths of cowpeas, velvet beans, and peanuts—all legumes which capture nitrogen from the air and leave it in the soil, besides furnishing the best of feed. The pine



FIG. 4.



FIG. 5.

FIG. 4—A field of legumes on cut-over pine land (Louisiana Agricultural Experiment Station).  
 FIG. 5—Logging scene. The logs are loaded on cars by the steam derrick on the right.



FIG. 6.

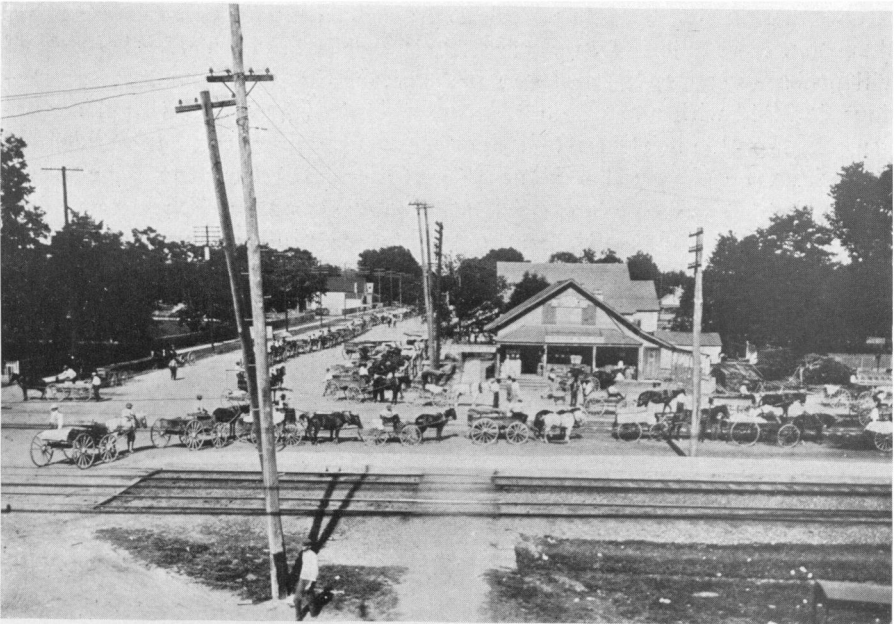


FIG. 7.

FIG. 6—A strawberry field on cut-over pine land. (Photo by G. L. Tiebout.)

FIG. 7—Loading strawberries. (Photo by G. L. Tiebout.)



soils are "warm," they drain readily, and are therefore excellent truck soils. The strawberry growers of Tangipahoa Parish in eastern Louisiana ship about \$3,000,000 worth of berries annually. Their lands are rolling to level, with typical sandy soils underlain by impervious clay. Many of the growers are Italians, who, with characteristic thrift and industry, have drained and built up the soils, until they have acre values of \$100 or more, while similar lands outside the berry district may be bought for \$10 an acre. But trucking has at best a limited market; the crops are intensive, and at most only a small portion of the long-leaf pine soils can be used for truck. Some of these lands have yielded two bales of cotton to the acre and sell for more than \$100 an acre, but only after long and skillful building up.

Cut-over lands must, of course, first be cleared of brush. This is easy if the lands have recently been cut over, for there is little undergrowth in the virgin forest; but upon lands long cut over this clearing is expensive. For the first crops it is not necessary to remove the stumps, since the plow can be run around them. Furthermore, it is now possible to extract the resin from the stumps. Thus not only can the removal of stumps be paid for but in some instances profits of \$15 an acre or more have been realized in addition. As the grain farmer of the West has so often "mined" his soil, so the farmer in this belt has in many cases with his cheap lands found it easier to clear new fields than to build up old ones. The old fields are often "turned out" to become covered with brush, and one may often see old cotton rows extending through young forests. Such a wasteful method will probably continue for some time; but the South, like many other sections, is faced with a shortage of labor, which will tend to lessen this practice. In the pine belt the mobile labor tends to drift toward the mills, and fresh land requires extra labor for clearing. Furthermore, the newly cleared land is too rough for the machine cultivation which is to replace hand cultivation. In short, the sandy pine lands in their present state are not adapted to quick, profitable yields of such crops as the corn and wheat of the Middle West. They must be built up; but during the process the fertilizing legumes, which grow so readily, will provide hay and grazing. Then, too, the long seasons permit an almost continuous use of the land.

#### LIVE-STOCK RAISING

Stock-raising on an extensive scale calls for cheap grazing lands available for as large a part of the year as possible. Such conditions were supplied by our Western lands before the ranch was crowded out by the farm. After the summer grazing was over and as winter came on, the grass died down to a nutritious hay; but the day of large tracts of range lands is rapidly passing, and beef cattle are decreasing. Grazing is being pushed to the dry lands, and these are shrinking as water is found to irrigate them. Thus, with the rising cost of meats come new inducements to live-stock raising, and the Southern pine belt offers the most readily available lands

for this needed live-stock expansion. The mild climate permits open-air maintenance nearly all the year around. The wild grasses of the cut-over lands grow in the spring and summer and furnish fairly good pasturage, but by autumn they have dried, not to the nutritious hay of the West, but to a woody remnant that will scarcely afford sustenance. Here again, however, nature has provided a substitute in the hardy, nutritious *Lespedeza*, or, as it is often called, Japan clover—a nourishing grass which creeps behind the timber cutter to occupy the cut-over land and which, being a legume, adds nitrogen to the soil. The stockman should provide fall and winter grazing, and for this nothing is better than the cowpeas and velvet beans which grow so luxuriously but which require plowing and sowing each year.

The razor-back hog and “piney woods” cattle of this belt do not connote the symmetrical, bulky, heavy swine and steers which are associated with our ideas of luscious hams and tender steaks. These denizens of the pine lands have evolved from generations which were obliged to “rustle” far and wide for food, and one must be strong of jaw and vigorous of digestion to relish their meat. This native stock, however, has a most valuable characteristic; they grade well with blooded sires and transmit their own hardiness together with the size and meatiness of blooded stock. Sheep-raising is an industry of cheap new lands. Sheep will graze on rough lands and will consume not only grass but young brush. This industry is no longer an experiment on cut-over lands; flocks up to thousands are flourishing on the well-drained cut-over lands of this belt. Dairying is a form of intensive farming which demands considerable tillage for forage crops as well as close attention to the herd. The high prices for dairy products in recent years have stimulated this industry in the South as well as elsewhere. The dairyman and his herd, however, require years for their upbuilding, and scarcely more than a promising beginning has been made on the cut-over lands. Yet enough has been done to show that dairying is entirely practicable.

#### MIXED FARMING

It appears that, generally speaking, the successful farmer on cut-over lands will combine stock-raising and cropping. Live stock need legumes, which require cultivation, while the corn-and-cotton farmer needs live stock for the upbuilding of his lands. The average farm in the United States comprises about 130 acres, and the cut-over lands ready for settlement each year would provide nearly 60,000 of these farms and support something like 200,000 people. It is not easy to predict the future, but it is probable that a considerable acreage will be retained indefinitely by the holding companies. Large ranches will be given over to the raising of live stock together with some production of legumes for winter feeding. A considerable area will be divided into farms of moderate size, especially near

towns and along good roads. Some lands will be reforested. The development of these lands awaits immigrants either from densely settled portions of the United States or from abroad. Possibly with the war's close there may be a return to the rural regions of the young men who have seen the productive farming of Europe. High prices of farm products will probably check or possibly reverse the present movement of our population cityward. Immigration from abroad may be resumed and flow to these cheap lands and this mild climate. Whatever the final solution of the problem, the development of this Southern empire is important both to the South and to the nation.